LEVEL-OF-SERVICE DEFINITIONS

The level-of-service of an intersection is determined by analyzing each approach individually. A computation is made of each approach to determine its "load factor" during both the morning and afternoon peak hours. The "load factor" is determined by recording the number of "loaded cycles" on each approach during the two-hour study periods in the morning and afternoon.

A cycle of the signal is the period that encompasses one green indication. During each cycle of the traffic signal, an observer determines which vehicle is the last vehicle stopped in the queue at the time the signal turns green. If that last vehicle does not get through the intersection during that one green indication, the cycle is recorded as being "loaded". This continues through an entire two-hour study period, with each approach of the intersection being independently evaluated. After the study is complete, each approach is studied to determine the particular 60-minute period that had the highest percentage of cycles which were "loaded". Thus each approach is given a separate maximum **percentage** of "loaded cycles", and this percentage is called the "load factor". The "load factor" can range from 0% to 100%. If an approach had a "load factor" of 40%, it would mean that during 40% of the cycles (in the most congested 60-minute period on that approach) all of the vehicles stopped in line for the signal when it changed green did not get through that signal on that one green indication. (If there were 25 vehicles in the queue at the time the signal changed green and the last, or $25^{th,}$ vehicle was the only vehicle that did not get through the intersection, the cycle would still be recorded as a "loaded cycle" even though 96% of the vehicles got through the intersection on one green indication.)

The "load factor" for the intersection is determined by looking at the approach with the highest "load factor" in the morning and the same in the afternoon. The highest "load factor" for the morning and afternoon is then used to determine the Level-of-Service. In timing signals, it is the intent to try and equalize the "load factor" on each approach to be as equal as possible so that no one approach is being more delayed than the other. Therefore, if an intersection was evaluated and determined to have a load factor on one approach of 15% and on the cross-street approach of 60%, the signal would first be retimed to try and equalize them and then the intersection would be restudied.

The Level-of-Service is determined by using the following chart with the "load factor" (LF) for the intersection as computed above:

Level-of-Service	
A	LF = 0%
B	LF = 1% - 10%
C	LF = 11% - 30%
D	LF = 31% - 70%
E	LF = 71% - 85%
F	LF = 86% - 100%

In Baltimore County, the level-of-service can regulate the issuance of building permits for non-industrial development in urban areas determined to have a significant influence on a particular intersection. Areas around a level-of-service "F" intersection would have a moratorium on building permits for non-industrial development, with some very limited exceptions. Areas around a level-of-service "E" intersection, would be allowed to have a limited number of building permits issued. Level-of-Service "D" intersections do not control issuance of building permits, but their areas are identified on Baltimore County's Basic Services Transportation Maps to identify the deficiency. The purpose in identifying such "D" intersections is to provide notice to the public that the intersection has the potential of going to an "E" or "F" and also to cause the County to identify such deficiencies and try to work toward correcting them and lessen the congestion before it reaches a very serious problem. The Level-of-Service does not in any way evaluate the safety aspects of an intersection but is strictly a congestion measure.